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U.S. Department of the Interior

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Fire Management Officer
Tom Nichols



Comments or Questions:

Fire Education Specialist
Deb Schweizer
Yosemite National Park
P.O. Box 577
Yosemite, CA 95389
209/372-0480
debra_schweizer@nps.gov

Website:

www.nps.gov/yose/fire

NPS Fire and Fuels Management



El Portal Fire Station has a new fire engine and rescue truck. The El Portal station provides community response for nearby Mariposa County and Yosemite National Park. El Portal Station Engineer John Newitt and El Portal Station Captain Bernard Spielman are pictured.

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Adapting Fire Management Through Monitoring

The following interview is with Monica Buhler. She is the lead fire effects monitor for the Fuels and Ecology Branch of Fire Management in Yosemite National Park.

Q: Tell us a little about your job.

A: I oversee a staff of four. We monitor the effects of mechanical thinning and prescribed fire on the vegetation and fuels. Before a burn, for example, we inventory a plot, or sub-sample of a representative forest, for overstory trees, sapling trees, seedlings, brush, herbaceous plants such as grasses, and fuels (dead and down woody debris and organic material). We consider the presence of rare, threatened, or endangered species or non-native species. We photograph what is there.



Monica Buhler measures the DBH (diameter at breast height) of a Ponderosa pine tree.

Within two months of a burn, we re-inventory the plot and determine the burn severity of the fire -- overstory char height, crown scorching, and surface consumption of needles, wood and other organic matter. Then we read the plots again one year, two years, five years, ten years etc. after the burn. In the short-term we evaluate the plot for overstory mortality, recruitment (surviving seedlings), species diversity, and non-native species. In the long-term, we also study the seedling recruitment, as well as change in understory diversity, and increases in fuel loading that may determine the need for another prescribed burn or other action.

Q: Can you give us an example?

A: We are monitoring large sugar pine trees more closely right now. The data from plots burned in the prescribed burn at Gin Flat in 2002 suggested more sugar pine mortality than is desired, so we implemented a new monitoring protocol focusing on sugar pine overstory mortality and recruitment this year. This will help us determine what methods work to mitigate sugar pine mortality during burns.

Q: Why is this data important for the fire program in Yosemite and how is it used?

A: Sugar pine trees are declining in the Sierra Nevada for a number of reasons: white pine blister rust (a non-native fungus), competition with other species, and the lack of fire. Natural fire helps sugar pine regeneration by exposing mineral soil, for seedling germination providing greater sunlight in the forest, and reducing competition. However, reintroducing fire has its own issues now because of the accumulations of fuel over the years. Even a prescribed burn of low intensity can lead to mortality because the litter and debris is so deep that temperatures lethal to the tree can be reached as this material burns.

See Fire Effects on page 2



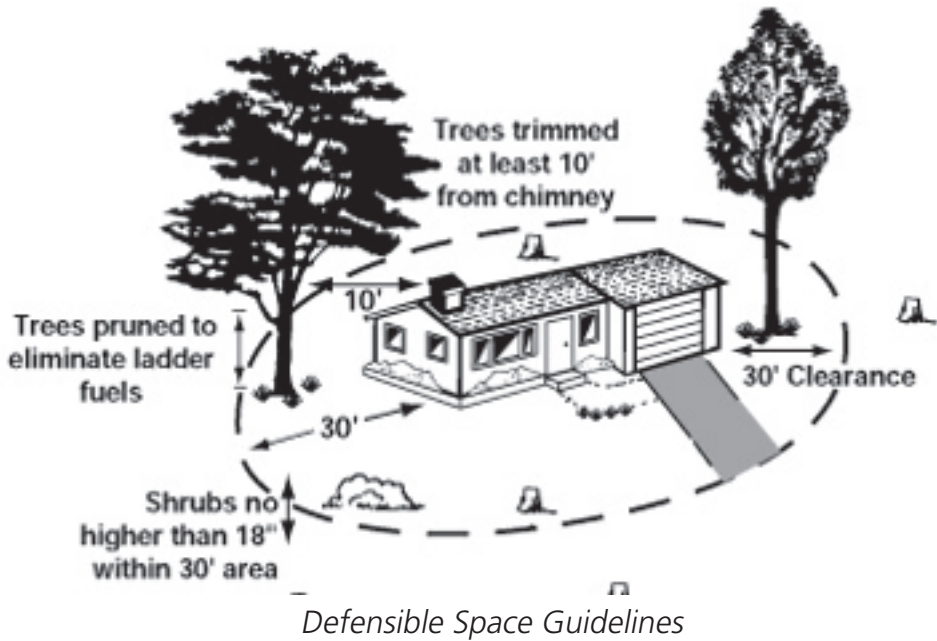
Yosemite fire effects crew member, Ilana Abrahamson, takes measurements in a plot.

Preparing for Fire Season

As summer approaches, Yosemite National Park is preparing for fire season. Fire personnel and equipment are returning to the park.

Winter storms have brought heavy rain and snow in California. This may help moderate the fire season in the mountains but may increase fire potential in the lower elevations, due to heavier concentrations of grass and brush. However, wildland fire is always a possibility in the Sierra Nevada.

Residents of mountain and foothill communities can also take steps to prepare for fire season and help protect homes from wildland fire. One way to do this is to create a defensible space around their homes. Creating defensible space is required in communities within Yosemite National Park and in many mountain communities. Please check with your local fire agency for specific requirements. For more information about defensible space, please visit www.firewise.org.



Fire Effects, cont. from page 1

A (cont.): The monitoring we do is part of an adaptive management loop. Any prescribed burn or mechanical thinning project has objectives to be met and monitoring determines if those objectives have been successfully met. If not, the information we provide may change those objectives or the methods used in the burn, such as the timing of the fire or its intensity. With sugar pines, monitoring will show if our steps to mitigate tree mortality are working. These steps include clearing woody debris and ladder fuels (small trees that connect ground to canopy) or removing litter and duff from around the trunks of the trees before a beginning a burn. Then this information is included in future burn plans.

We have so few intact old-growth forest ecosystems left that we need to protect them, especially in national parks which contain these ecosystems. To do this, we need to know how, and this science helps us do that.

Fire effect crew member Isaiah Hirschfield measures overstory char height.

Proposed Fire and Fuel Projects for 2005

Prescribed burns and mechanical fuel reduction projects help Yosemite National Park protect ecosystems and communities in the park by restoring fire's natural role.

Approved projects for this year total almost 5,000 acres. However, only segments of these projects are likely to be done. For example, roughly 1,500 acres of the Gin Flat project is expected to be completed in 2005. The execution of burns depends on air quality conditions, workload, fuel moistures, weather, and other factors.

Mechanical treatment along the Wawona Road (Highway 41) south of Chinquapin continues this year.

